

**On Batrachians from Bolivia, Argentina, and
Peru, collected by Erland Nordenskiöld 1901—
1902 and Nils Holmgren 1904—1905.**

By

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With one plate.

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The frogs in this collection are brought together by Dr. ERLAND NORDENSKIÖLD during his journey in Bolivia and Argentina in the years 1901—1902 (»the Swedish chaco-cordiller-expedition 1901—1902») and by Dr. NILS HOLMGREN during the expedition undertaken by him and E. Nordenskiöld to Bolivia and Peru 1904—1905. The first collection, now kept in the museum of *Stockholms Högskola*, embraces 15 species with 135 specimens, the second belongs to *Kungliga Riksmuseet*, Stockholm, and counts 7 species with 23 individuals.

Regarding the localities I beg to state the following: *Tatarenda* lies in the Bolivian Chaco on the border of the primeval forest, *Mojos* is a town in the west of Bolivia at the foot of the Andes, 1600 m. above the sea-level, *Lagunillas* is a little place near this town (1700 m.), *Tuiche* is a little river east of Mojos and *San Fermin* a place with some huts for gatherers of gum, situated in the forest-region in the northwest of Bolivia, 660 m. above the sea-level. *Salta* is a town in the north of Argentina, *Quinta* a place in the province of Jujuy, Argentina, both belonging to the primeval

forest region. *Moreno* and *Casabindo* lie in the Andes of Argentina in the alpine region, 3500 m. above the sea-level (Prov. of Jujuy), *Volcan* is a mountain valley on the slopes of the Andes of Argentina. *Chaquimayo* and *Vacamayo* belong to the primeval forest region of Peru.

To Dr. G. A. BOULENGER, who has kindly revised two of the new species, I beg to express my sincere gratitude.

Dendobrates trivittatus Spix.

BOULENGER, Cat. Batr. sal. p. 144; *D. nigerrimus* Spix, STEINDACHNER in Verhandl. zool. bot. Gesellsch. Wien 1864 p. 257; *D. hahneli* Boul., BOULENGER in Proc. Zool. Soc. 1883 p. 636; *D. braccatus* Cope, COPE in Proc. Am. Philos. Society Philadelphia 1887 N:o 125 p. 53; *D. trivittatus* Spix, *D. braccatus* Cope, and *D. hahneli* Boul., FR. WERNER in Verhandl. zool. bot. Gesellsch. Wien 1901 p. 630.

One specimen, 27 mm. in length, found sitting on a dry trunk, July 1904. San Fermin, Bolivia. Holmgren.

It agrees completely with the description STEINDACHNER gives in the paper, quoted above, on some small *Dendrobates* specimens, which he declares for certain to be young *D. nigerrimus* Spix (= *D. trivittatus* Spix). It also corresponds, except in a few unimportant cases, with Cope's form *D. braccatus* and very much so with Boulenger's *D. hahneli*.

In reality, we also find that COPE states his species to be identical with another of the juvenile forms of *D. trivittatus*, described by STEINDACHNER; but, considering it to be fullgrown, he declares it to be a species apart, distinct from *D. trivittatus* through the size and colour. As he does not give any sufficient reason for this opinion, there is in my thought no ground to maintain Cope's form as a distinct species, especially as STEINDACHNER had at his disposal a great number of specimens of different ages, which, according to him, evidently show that there exists a specific relation between these small white-striped and red-spotted individuals and the greater, black, uniform-coloured specimens of *D. nigerrimus* (= *D. trivittatus*).

Just as well we could declare this specimen to be fullgrown, representing a new species, »*D. eucnemis*» (see STEIN-

DACHNER loc. cit.), different from Cope's *D. braccatus* by its darker belly; but that, I suppose, none feels inclined to do, knowing the great variation in colour in the species of this genus. If then these two forms belong to the same species, much goes to prove that they also are specifically connected with the other forms, mentioned by STEINDACHNER as colour-varieties of *D. nigerrimus*. In his catalogue, BOULENGER also mentions some colour-varieties of *D. trivittatus*, which can scarcely be specifically distinguished from this specimen.

In his synopsis of the Dendrobatids, WERNER (loc. cit.) also distinguishes *D. braccatus* Cope from *D. trivittatus* Spix, but as chief characters between the species he only gives the dissimilar size and the dissimilar length of the eye in comparison with that of the nose, these being, however, the usual differences between old and young specimens.

Regarding Boulenger's species, *D. hahneli*, it seems to differ from this one only in the lower white line, which does not reach the nose, ending instead below the eye, and in the missing of the red spot on the hind side of the tibia. These differences, I believe, are too small to be used as specific characters in a genus the species of which exhibit such a colour-variation as those of *Dendrobates*. COPE, however, says that his form, *D. braccatus*, may be distinguished from *D. hahneli* by its considerably shorter posterior limbs, but it seems strange that a specific difference should arise from the fact that in Cope's form »the muzzle marks the heel of the extended hind leg», while in that of Boulenger »the tarso-metatarsal articulation reaches beyond the tip of the snout». As far as I can judge, that is the same thing.

Thus, I believe that my specimen as well as Boulenger's *D. hahneli*, Cope's *D. braccatus*, and Steindachner's juvenile forms belong to the same species, which, on the authority of STEINDACHNER, till further discovery proves the contrary, we may presume to be a young colour-variation of *D. trivittatus* Spix.

Cope's specimen was found in Brazil, Matto Grosso, Steindachner's also in Brazil, and Boulenger's in Peru. This one being from Bolivia, the form seems to be spread over the whole middle South-America, thus having the same geographical distribution as *D. trivittatus*, a fact that strengthens the above suggestion.

Hypopachus mülleri Böttger.

Twelve specimens, varying in length from 25 to 49 mm. Tatarenda, Bolivia, Chaco. Erland Nordenskiöld. March—April 1902.

In *Boll. Mus. Zool. Torino* 1897 N:o 274 PERACCA gives the same patria (Bolivian Chaco) for this species.

The colour above is about the same in all specimens: bluish gray with a black network, growing more distinct further down the sides, where it merges into their black ground-colour. Below, the colour varies considerably, the bottom-colour changing from light brown almost to black. The white or yellow spots are also very different, being in some specimens numerous, small and equally disposed all over the lower surface, in other confluent to irregular longitudinal bands, while in more dark-coloured individuals they are few and more obscure. Only two specimens lack dots on the throat, which in all the others is of the same colour as the belly. I mention this because BOETTGER found the throat as well as the back without dots.

In a specimen dissected, the stomach was filled with a great number of termites of the species *Termes dirus* Klug, kindly determined by my friend Dr. N. HOLMGREN.

Telmatobius jelskii Peters.

Four adult specimens, 42—53 mm. in length, 2 males and 2 females, and beside these 8 tadpoles in different states of development. Moreno, Andes of Argentina, October 1901. Erland Nordenskiöld.

As far as I know, the species has hitherto been found only in Peru and Ecuador. It is a mountain form.

The two males have the innerside of their thumbs densely covered with small horny points; besides, there are some scattered on the breast.

The tadpoles are light olive-coloured, having sometimes a few indistinct dark spots on the back. The skin is quite smooth, except in one of the old specimens, the back of

which is somewhat tubercular as in the adults. The youngest larva, the hind limbs of which are only 3 mm. in length, measures 30 + 60 mm.; the others are but slightly larger. The largest length of the tail (68 mm.) is found in a specimen with rather small hind limbs; and the least length (55 mm.) in a specimen with developed front limbs and reduced horny beak and teeth, thus standing just on the limit of the adult state. Largest length of body (40 mm.) we find in another specimen, being in the same state of development. Thus, the tadpoles reach nearly the same length of body as the fullgrown individuals.

On the lower lip the horny teeth are placed in three rows; on the upper one in two, the innermost of which, however, is interrupted in the middle.

A comparison between the sexes shows that the limbs, especially the front ones, are considerably longer in the male than in the female, while other measurements are quite similar in both sexes. In the largest larva the hind limbs are, as shown below, already nearly as long as in the adults, while the fore limbs are considerably shorter.

The great breadth of the head of the larva depends on the inner gills, which are still maintained.

	♂♂	♀	♀	Larva
Length of body in mm.	52,53	48	42	40
» of femur in % of length of body	49,5	45,8	41,7	42,5
» of tibia » »	47,7	43,8	45,2	42,5
» of tarsus with 4th toe in % of length of body	70,4	69,2	66,7	62,5
» of fore limb in % of length of body	67,6	60,5	63,1	52,5
» of eye in % of length of body	10,5	10,4	11,4	11,5
» of nose » » »	14,5	14,6	14,5	12,5
Breadth of head » » »	39,0	39,6	38,8	47,5

Hylodes gollmeri Peters.

Two specimens, 40,42 mm. in length. San Fermin, Bolivia.
Aug. 1904. Holmgren.

The one specimen is rather lighter than the other one; both, however, correspond completely with the diagnosis in Boulenger's catalogue.

Previously, the species is stated to have been found in Venezuela, Ecaudor and possibly in Brazil.

Paludicola fuscomaculata Steind.

Five specimens, 19—32 mm. in length; four from Tatarenda, Bolivia, Chaco, April 1902. One from Casabindo, Puna de Jujuy. Argentina, Okt. 1901. Erland Nordenskiöld.

All specimens are well characterized by their well developed metatarsal tubercle as also by the flat, blackish brown lumbar gland, encircled with a narrow white ring. The smallest specimen is covered on the upper surface with numerous small warts, while the other four are quite smooth. The lumbar gland of the largest specimens is distinctly chagreened, not or but slightly visible in the others. All the specimens have on the tympanic region a semi-lunar dark spot more or less distinct, with a narrow light excavation on the lower margin. In the largest specimens we find behind this spot a dark-coloured lateral band, extending to the lumbar gland. The lower surface is light with small brown dots on chin and throat. In the largest specimens there is a distinct ventral disk, slightly visible also in two of the smaller ones.

Paludicola alpina nov. sp.

Pl. 1, fig. 1, 1 a.

Two specimens; Casabindo, Puna de Jujuy, Andes of Argentina, 3500 m. October 1901. Erland Nordenskiöld.

Tongue subcircular, slightly notched behind. Vomerine teeth in small groups, convergent behind from the front edges of the choanæ. Snout rounded, as long as the orbital diameter. Nostril much nearer the tip of the snout than the eye. Interorbital space slightly narrower than the upper eyelid. Tympanum indistinct with the margins slightly visible. First finger longer than second. Toes webbed at the base, the web extending as low dermal ridges along the sides. Two large, prominent metatarsal tubercles, the inner longitudinally oval, the outer one more transversly enlarged. The hind limb being

carried forwards along the body, the tibio-tarsal articulation reaches the middle of the orbit or beyond. Upper surfaces smooth, except a few small scattered tubercles on the back and on the hind parts of the thighs, the lower surfaces of which are granular; remaining lower parts smooth. A large oval lumbar gland, variable in length. In one specimen (the figured one) it is once and a half as long as the orbital diameter, in the other specimen on one side of the same length as this diameter, on the other side distinctly longer, though not as long as in the specimen first mentioned.

Colour above grayish brown, with very distinct, large, darker, lightedged, unregular spots. Immediately inside their light edges there sometimes runs a narrow black stripe, and in the spots there are black specks that may often be seen to run together into rings. On the whole, the arrangement of the spots is about the same in both specimens, but by merging or dividing they get, however, differently shaped. There is a faint trace of a light median line. The lumbar gland has a large oval dark spot with a broad black margin, narrowly edged with white. In one example the dark spot occupies nearly the whole gland, in the other (the one with the larger glands) there is a broad border of the ground-colour encircling the spot. Loins and sides of body light with small black spots. Limbs with broad dark cross-bands. Lower surfaces of a dirty, yellowish white; chin gray, probably a male character, both specimens being males.

Among Paludicola-species with well developed lumbar gland, hitherto known, it seems only to be *P. bibronii* Tschudi, *P. cinerea* Cope, and *P. brachyops* — the last mentioned as it is characterized in *Cat. of Batr. sal.* p. 282 — with which this form may possibly be identical. The other species all seem to have their distinct characters, by which they are easily distinguished from this one: *P. bufonia* Bell has half-webbed toes. *P. fuscomaculata* Steind. a tarsal tubercle, *P. borelli* Per. lacks dermal folds along the toes, *P. fischeri* Boul. has no vomerine teeth and the first finger shorter than the second, *P. frenata* Cope has a rudimentary second finger and *P. dentula* Boettger also lacks vomerine teeth and has long and narrow tongue.

As to the three first-mentioned, *P. bibroni* has a longer and more rounded nose, the nostrils are situated nearer

the eye, the first finger is not longer than the second, and the metatarsal tubercles are considerably smaller. From *P. cinerea*, to which it corresponds very well in locality, it seems to differ, to judge from the description of this species, chiefly by its indistinct tympanum, its great outer metatarsal tubercle and by its colour. Regarding my species it is impossible to speak either of any »indistinct dark spots», as they are very well marked and distinctly limited from the ground-colour, or of any »black crescent on the inguinal gland» etc.

We turn at last to *P. brachyops* Cope. With the diagnosis BOULENGER in his catalogue gives of this species these examples agree rather well, but not with Cope's description.¹ Cope points out that his species lacks dermal folds and that the first finger is shorter than the second; the colour does not agree, nor does the locality, whence I do not hesitate to distinguish it from Cope's *Paludicola (Lystris) brachyops*. From the specimens dealt with in Boulenger's diagnosis it differs by the truncated nose, longer hind limbs and quite different colour, besides which the patria of this one is Venezuela and N. Brazil, my specimens living in the alpine regions of the Andes of Argentina.

Hence I believe that the specimens at my disposal represent a new species, which I name *alpina* on account of its living on the treeless alpine regions of the Andes.

Measurements of the specimens: Length of body 39,36 mm. Length of femur 17,16 mm., of tibia 16,8, 16 mm., of tarsus with fourth toe 26,26 mm. Length of forearm 25, 22,6 mm., length of nose 5,8, 5 mm., diameter of eye 5,5, 5 mm. Breadth of the head 14,8, 14 mm., of interorbital space 3,2, 3 mm. Length of lumbar gland 8—7, 5,2—6 mm.

As regards the name of *Paludicola brachyops*, it seems to me that Cope's species by this name is not the same as that spoken of by BOULENGER, whence the last-mentioned species ought to be named in another way. According to BOULENGER it is synonymous with *Paludicola elegans* Steind. and *P. sachsii* Peters, in which case the latter name may be used, the name *elegans* being preoccupied.

¹ Proc. Ac. Philadel. 1868, p. 312.

Leptodactylus pentadactylus Laur.

Two specimens, 29,31 mm. in length, from Quinta, Prov. de Jujuy, Argentina, July 1902. Erland Nordenskiöld.

As the specimens are young and thus rather difficult to determine, it is not without hesitation I refer them to this species, especially as it is not previously stated to have been found in Argentina, but they agree completely with the description of this species, except that the sole of the hind foot is provided with small but distinct tubercles, arranged in rows; besides we find in these specimens a faint though distinct ridge running from the inner metatarsal tubercle along the tarsus just as in specimens of *Leptodactylus prognathus*, mentioned below. As, in the latter case, there is no doubt about my specimens being identical with *L. prognathus* Boul., though BOULENGER in his description does not speak either of such ridge or such tubercles, we may presume that their presence does not prevent from ranging these specimens under *L. pentadactylus*.

Among *Leptodactylus*-species, hitherto known from Argentina, my specimens seem to agree most with *L. mystacinus* Burm., but as the skin is not porous and the coloration different (at least in one of the specimens the upper lip is white, and of the dark lines along the back there are no traces in any one) they probably do not belong to this species.

Leptodactylus typhonius Daud.

One specimen, 36 mm. in length. Tatarenda, Bolivia, Chaco. Nordenskiöld.

It is a typical *L. typhonius* Daud., but the tympanum is not larger than half the diameter of the eye.

The species is previously recorded by PERACCA (Boll. Mus. Zool. Anat. di Torino vol. 12 1897 N:o 274 p. 17) from the Bolivian Chaco.

Leptodactylus ocellatus L.

21 specimens, varying in length between 20 and 79 mm. Tatarenda, Bolivia, Chaco, and Quinta, Prov. de Jujuy, Argentina. Nordenskiöld.

PERACCA (loc. cit.) also mentions this species from the same localities.

Leptodactylus prognathus Boul.

Ann. Nat. Hist. (6) 1. 1888 p. 187.

30 specimens, 2 large and 28 small ones, from Tatarenda, Bolivia, Chaco. Erland Nordenskiöld 1902. Length between 48 and 21 mm.

In all the small specimens there are on the sole of the foot and often on the tarsus and remaining parts of the hind limb small but distinct tubercles, disposed in rows on the foot. There is also a faint tarsal ridge on the inner side of the tarsus. In the large specimens the tubercles have disappeared. As PERACCA (Boll. Mus. Zool. Anat. Torino 1897 N:o 274) finds the same structures in his specimens, both in young and adult, it is true that they are constant, at least in the young, though BOULENGER does not speak of them.

The ground-colour is bluish gray, in some brown.

Leptodactylus bufonius Boul.

Ann. Nat. Hist. (6) 13. 1894 p. 349.

Five specimens from Tatarenda, Bolivia, Chaco, varying in length between 27 and 55 mm. E. Nordenskiöld, 1902.

The measurements I took of the specimens, a large male, and four small specimens show a great correspondence between the different ages.

In the male the sides of the throat, where the great vocal sacs are to be found, are deep black as well as the tympanic fold, which is very prominent and behind the tympanum enlarged to a broad black nearly paratoid-like gland.

	1 ♂	3 small (27-31 mm.)
Length of body in mm.	55	28,5
» of femur in % of that of body . . .	41,8	41,8
» of tibia »	41,8	41,7
» of tarsus with 4th toe in % of that of body	60	61,4
» of humerus in % of that of body . .	16,5	16,1
» of forearm with hand in % of that of body	40	42,7
» of nose »	16,5	17,1
» of eye »	10,9	13,8
Diameter of tympanum »	7,5	7,6

According to BOULENGER there is no glandular lateral fold, but the light warts on the sides he speaks of are at least in the great specimen placed one immediately behind the other, thus forming something nearly like such a fold.

The ground-colour is in the older olive brown, but in three of the young almost black, in one gray. The lower surface is in all without dots or marmorations.

The species is previously recorded (by PERACCA loc. cit) from Bolivia.

Bufo spinulosus Wieg.

Three specimens: one from Moreno, one from Casabindo, Puna de Jujuy, Argentina, Erland Nordenskiöld 1901, and the third from Mojos, Belivia, Holmgren; 85,60, and 48 mm. in length.

Measures of the specimens show a great correspondence in the different sizes; the only difference due to age to be detected consists in the paratoids becoming longer and narrower with age. In the smallest specimen they are just as broad as long, but in the largest nearly twice as long. The two smallest lack spines on the warts, the largest being very distinctly spiniferous. In the smallest specimen the warts have a tint of light red.

The species is previously recorded from the mountain regions both in Peru and Argentina.

Bufo marinus L. and *Bufo crucifer* Wied.

As far as I can judge 25 specimens of the toads belong to the species *Bufo marinus* L. and 5 to *B. crucifer* Wied. Of the former, which vary in length between 19 and 195 mm., 14 are from Tatarenda, Bolivia, Chaco 1902, 4 from Salta, 2 from Quinta, Argentina, Erl. Nordenskiöld; the other five have been taken by Holmgren at San Fermin, Mojos and Tuiche, Bolivia. The five crucifer-specimens, varying in length between 21 and 36,5 mm., have been found by Holmgren at Tuiche, Bolivia and Vacamayo, Peru.

The smallest crucifer-specimens and two of the smallest marinus-specimens agree completely in colour. The ground-colour in these is olive gray with regular dark spots, placed in pairs on the back, which also has a light median line; the lower surfaces are light and the limbs are distinctly cross-banded. But the nose is more acuminate in the *crucifer*-specimens and the hind limbs and the toes are longer than in *B. marinus*. In the former the hind limbs are thus 155—157 %, the tarsus with the 4th toe 64—65 %, of the length of the body, but in the latter these measurements are not higher than 140 and 60 %. In the larger specimens this difference becomes still more distinct, the largest crucifer-specimen (36,5 mm.) having these measures 167 and 71,2 %, but a marinus-specimen of the same length (39 mm.) respectively only 126 and 54 %.

By the table below we find that the hind limbs in *B. marinus* vary in length rather much, but in none they pass 140 % of the length of the body. In the smallest specimens they seem to be longest, but a great variation may be said to exist both in small and large specimens.

The paratoids, on the contrary, grow very regularly with age; being in the youngest specimens only half as long as their distance to the tip of the snout, they become longer and longer, being in specimens of about 100 mm. equal with this distance and in still larger specimens considerably longer.

Variations of the hind limbs and of the paratoids in *Bufo marinus* L.

Length	195	130	128	108	100	99	93	91	88	82	80	79	76	65	39	20	19	19
Length of hind limbs in % of the length of body	122	130	133	130	118	127	125	133	122	123	130	118	126	138	126	140	140	132
Length of the para- toids in mm.	58	37	33	29	25	27	25	20	24	20,5	19	19	17	15	9,2	—	—	3
Distance between the paratoids and tip of snout in mm.	44	35	35	28	25	26	24,5	23,5	23	22	22	21	21	17,5	10,2	—	—	6

Bufo d'orbignyi Dum. & Bibr.

19 specimens from Tatarenda, Bolivia, Chaco. E. Nordenskiöld 1902. 30—73 mm.

As far as I can see, this species is not before recorded from Bolivia. It seems to be very common at Tatarenda.

Hyla raddiana Fitz.

According to BERG, Batracios Argentinos in Museo nacional de Buenos Aires, Tom 5 p. 201, this is the correct name for *Hyla pulchella* Dum. & Bibr. (Boul. Cat. Batr. p. 375).

One specimen, 56 mm. in length; from Volcan, Andes of Argentina ²⁰/₁₂ 1901. Erland Nordenskiöld.

The specimen is a male, but does not agree with the variety of coloration BOULENGER mentions as being possibly characteristic for the males; it rather corresponds with the supposed female coloration. There is a distinct curved claw on the inner side of the thumb contrary to the statement in Cat. of Batr., but still there is no doubt that it belongs to this species. (It is not a *Hyla bracteator* as it is characterized in Cat. Batr. sal. (= *Hyla güntheri* Boul. according to BERG loc. cit.)) According to BERG the frog that HENSEL in Archiv f. Naturgesch. 1864 p. 159 described under the name of *Hyla bracteator* is synonymous with this form, and as the male of this one is also provided with such a claw, one may presume that in some cases at least such a structure appears in the males of this species, too.

Hyla nasica Cope.

Two specimens from Bolivia, Chaco. Erland Nordenskiöld. 24,28 mm. in length.

The species is previously recorded from this place (PERACCA, loc. cit.).

Hyla palpebrogranulata n. sp.

Plate 1, fig. 2, 2 a, 2 b.

One specimen; Tatarenda, Bolivia, Chaco, Erland Nordenskiöld. 1902.

Tongue broad, subcircular, entire, slightly free behind. Vomerine teeth in two short slightly arched fasciculi in a nearly straight interrupted series partly behind the moderate choanæ. The shortest interchoanal space is 65 % of the distance between the outermost angles of the choanæ; closely behind these there is a transversal palatine ridge. Snout subtruncate, longer than the diameter of the eye; canthus rostralis rounded, loreal region concave. Nostrils near the tip of the nose; interorbital space considerably broader than the upper eyelid. Tympanum very distinct, small, scarcely half the diameter of the eye. Fingers webbed only at the base; on the fourth toe the web reaches the penultimate phalanx, on the others the disks. On the fingers the disks are somewhat smaller than the tympanum, on the toes considerably so. Hind limb long and slender; the tibio-tarsal articulation reaches nearly the tip of the snout. Upper parts of the body with distinct porous tubercles, the upper eyelid, the whole lower surfaces of the body and of the thighs, and the sides of the body densely granulate. A faint fold above the tympanum.

Light brown above with large dark markings, viz. a large Y-shaped spot with the short broad branches of the Y beginning at the eye and the narrow stem connected with another large spot, covering the whole posterior part of the back, except an insuliform area of the ground-colour. Both on the light and dark coloured parts there is a honeycombed network of faint, more or less indistinct, darker lines. On the parts before the dark Y-shaped spot these lines are more numerous, causing these parts to appear darker than the other light ground-colour. Behind the eye a broad dark band, light-edged at the upper margin, including the tympanum, extends to the axilla, where it bifurcates, an upper branch running somewhat further on the side of the body, a lower one out on the humerus. Visible parts of the limbs, feet and hands provided with broad very distinct cross-bands. Lower surfaces whitish with a black shade on the belly, where the white granules are encircled by narrow lines of dark ground-colour. Also on the sides the granules are white and separated by dark network.

Length between nose and vent 33 mm., femur 14,5 mm., tibia 16 mm., tarsus with 4th toe 20,5 mm., forearm 20 mm.,

nose 6 mm., eye 4,5 mm., tympanum 2 mm., breadth of head 11 mm.

To judge from the descriptions, the specimen seems to agree most with *Hyla phrynoderma* Boul. (Ann. Mus. Civ. Storia Nat. Genova Ser. 2. Vol. 7, p. 248) and with *Hyla verrucigera* Werner (Zool. bot. Gesellsch. Wien 51 p. 601) and the related specimens of this one, *Hyla buckleyi* Gntr. and *Hyla lepreurii* Boul. (Cat. of. Batr. pp. 361, 362).

From the first-mentioned species it differs by the situation of the vomerine teeth, the size of the choanæ, of the interorbital space, and of the tympanum, longer and more slender hind limbs, as well as by partly different colour. *H. verrucigera* is said to have another arrangement of the vomerine teeth, round nose, hind limbs which do not reach the tip of the snout, the belly alone being granulate and the colour uniform. *Hyla buckleyi* and *H. lepreurii*, on the other hand, have smaller interorbital space, smaller tympanum, as well as another arrangement of the vomerine teeth and different colour.

Hyla aluminiata n. sp.

Plate 1. fig. 3, 3 a. 3 b.

Eight specimens (among these one, not fully developed) from San Fermin, Bolivia, June—August 1904 and Chaquimayo, Peru, Nov.—Dec. 1904. Holmgren.

Habit very slender. Tongue heart-shaped. Vomerine teeth in two arched series between and behind the large choanæ. Nose short, the tip truncated, as long as the diameter of the eye. Nostrils near the tip of the nose. Tympanum hidden, but its margins visible in the largest specimen, larger than half the diameter of the eye and considerably larger than the disks of the fingers and the toes. Three outer fingers with a short web at the base, the innermost free. Toes $\frac{2}{3}$ webbed. The tibio-tarsal articulation reaches between the eye and the tip of the snout. Skin smooth above, on the chin, and on the throat, granular on the belly and under the thighs.

The ground-colour above is bluish-white with small oval black spots, sharply defined. The front part of the head is

either uniform silvery white, or there are, as on the figure, a few scattered spots. In one specimen the whole upper surface (except that of the limbs) is uniformly spotted. A black dorso-lateral streak runs from the tip of the snout through the eye nearly to the loin. In the largest specimen the sides below this streak are yellowish white but in the smaller one more or less dark. The extremities and the lower surfaces are in all examples uniformly light.

This form seems to be nearly allied to *Hyla punctillata* Peters and *H. punctatissima* R. & Lützk., but I think it hardly justified to identify it with any of those, as the coloration is distinctly different. It resembles rather much the figure REINHARDT and LÜTKEN give of *H. punctatissima* (Videnskabl. Meddel. Köpenhamn 1861 tab. 4 fig. 5), but the bottom-colour of this one is brown and the spots are of quite another type, smaller, more numerous and diffuse, and uniformly scattered all over the back and the head. The black lateral streak is also missing. From the same reasons it cannot be a *H. punctillata*, to which it, however, corresponds in the light ground-colour.

Seven developed specimens and beside those one with the larval tail partly left, caught in insect-nets on the leaves of the bushes, where these frogs live. Even the specimen, not fully developed, was get in the same way; the tadpoles, however, live in water, as Dr. HOLMGREN told me. The largest specimen measures only 18 mm. between nose and vent and the larval specimen 15 mm. If the larger specimen, as Dr. HOLMGREN believes, is full-grown, the tadpoles would attain about the same size as the adults, and this species would be one of the smallest of the genus *Hyla*.

I have submitted this form as well as the following one to the revision of Dr. BOULENGER, and he kindly let me know that he could not find them described in literature, but considering them to be young, he advised me to put them aside until better comparing material can be obtained. As it is, however, very uncertain whether I shall ever get any, I consider it best to publish descriptions and figures of them, in order to make it easier to state, whether they are juvenile forms of any species, already described, or they are really new.

As to this species at least, I think, however, much speaks in favor of its not growing much larger. Dr. HOLMGREN ob-

served it during all seasons and at different places, but he never saw larger specimens than these. As the species therefore seems to be rather common it would be very strange that he should not get any adult specimen or at least any showing changes in colour towards an adult dress eventually different.

The tadpoles were seen in June and July.

Measurements of the largest specimen:

Total length 18 mm.

Length of femur 7 mm.

» of tibia 9 »

» of tarsus with 4th toe 9 mm.

» of fore limb 11 mm.

» of nose 2,8 mm.

Diameter of eye 2,1 mm.

Breadth of head 6 mm.

Hyla rufopunctata n. sp.

Plate 1. fig. 4. 4 a, 4 b.

One specimen. Lagunillas, Bolivia. Holmgren.

Tongue broadly heart-shaped; vomerine teeth between and behind the moderate choanæ in two arched series, forming together an open curve. Snout as long as the eye, the tip somewhat truncate; canthus rostralis rather distinct; loreal region flat. Interorbital space considerably broader than the upper eyelid. Tympanum hidden. Outer fingers with a slight rudiment of web, no web between the two inner ones; toes webbed to the disk, except the fourth toe, the penultimate phalanx of which is free; disks of fingers and toes small. Hind limb long and slender, the tibio-tarsal articulation reaches somewhat beyond the tip of the snout. Skin smooth, granular on the belly and under the thighs. A narrow tarsal fold seems to exist.

The ground colour above bluish gray, the blue colour disappearing on the posterior part of the back, which is uniformly light gray; remaining parts of the back and the head densely covered with small rufous dots. A broad brown band, white-margined above, extends from the tip of the snout through the eye and ends, narrowing behind, somewhat before the

loin. Upper lip white-margined. Lower parts and the limbs uniformly yellowish-brown, except a narrow brown stripe along the outer side of the tibia.

The specimen seems to remind of the figure PETERS, in Mon. Berl. Ac. 1870 tab. 2 fig. 4, gives of *Hyla (Cophomantis) punctillata*, but, to judge from the descriptions of this one, it differs in coloration. *Hyla punctillata* has no red spots, no dark stripe through the eye, the upper lip is not white, and the concealed surfaces are blackish brown.

Measurements: Length of body 21,5 mm.; length of femur 10 mm., length of tibia 11 mm.; length of tarsus with 4th toe 15 mm.; length of forearm 15 mm.; length of nose 3,5 mm.; diameter of eye 3,3 mm.; breadth of head 8 mm.

Tryckt den 27 april 1906.